भारतीय मानक

Indian Standard

IS 4910 (Part 8) : 2023

कृत्रिम रेशों से निर्मित टायर सूत, डोरी और टायर डोरी कपड़ा — परीक्षण के तरीके

भाग 8 मोटाई

(दूसरा पुनरीक्षण)

Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test

Part 8 Thickness

(Second Revision)

ICS 83.160; 53.060.01

भारतीय मानक ब्यूरो
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May 2023 **Price Group 3**

Technical Textiles for Mobiltech Applications Sectional Committee, TXD 38

FOREWORD

This Indian Standard (Part 8) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Technical Textiles for Mobiltech Applications Sectional Committee had been approved by the Textiles Division Council.

This standard was first published in 1970 and subsequently revised in 1989. The second revision has been made in the light of experience gained since its last revision and to incorporate the following major changes:

a) The title of the standard has been modified;
b) Diameter of circular presser foot and pressure applied on specimen in apparatus have been modified; and
c) The tension required to make the cords straight in procedure has been specified.

This standard has been published in various parts. The other parts under this series are:

Part 1 Definition of terms
Part 2 Linear density
Part 3 Load and elongation characteristics
Part 4 Dip pick-up
Part 5 Heat shrinkage and heat shrinkage force
Part 6 Wet contraction and contractile force
Part 7 Heat degradation
Part 9 Sampling of tyre yarns, cords and tyre cord fabrics made from rayon
Part 10 Creep
Part 11 Commercial mass
Part 12 Sampling of tyre yarns, cords and tyre cord fabrics made from polyamide
Part 13 Static Adhesion of textile tyre cord to vulcanized rubber

The composition of the committee responsible for the formulation of this standard is listed in Annex B.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’.

Indian Standard

TYRE YARNS, CORDS AND TYRE CORD FABRICS MADE FROM MAN-MADE FIBRES — METHODS OF TEST

PART 8 THICKNESS

(Second Revision)

1 SCOPE

This Standard (Part 8) prescribes a method for determination of thickness (gauge) of man-made fibre tyre cords taken from cheeses, cones, bobbins, spools, or tyre cord fabrics.

2 REFERENCE

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed as in Annex A.

3 PRINCIPLE

3.1 The average thickness of a group of parallel tyre cords resting on an anvil is determined when a specified pressure is applied by the presser foot of a thickness gauge.

4 SAMPLING

4.1 Sample from the lot shall be drawn so as to be representative of the lot. Sample drawn in accordance with the relevant material specification or as agreed to between the buyer and the seller shall be held to be representative of the lot.

5 ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTING

5.1 Unless otherwise agreed to between the buyer and the seller, the test sample shall be conditioned to a state of moisture equilibrium from the dry side in standard atmosphere as prescribed in IS 6359.

NOTE — When the test sample under zero tension has been left in such a way as to expose, as far as possible, all portions of it to the standard atmosphere for 24 h, the test sample shall be deemed to have reached a state of moisture equilibrium.

5.2 The test shall be carried out in the standard atmosphere.

6 APPARATUS

6.1 Thickness Gauge Tester

The instrument used for measuring thickness of tyre cords shall be provided with the following arrangements:

a) A circular presser foot of 10 mm diameter;
b) A circular anvil having diameter at least 10 mm larger than that of the presser foot;
c) Means to apply pressure of 25 kPa to the specimens;
d) A dial or gauge graduated in mm and capable of reading to an accuracy of 0.01 mm; and
e) Means for adjusting zero reading on the dial.

NOTE — Any other apparatus capable of applying the same pressure of 25 kPa may also be used.

6.1.1 The presser foot and the anvil surfaces shall be plain and parallel to each other within 0.001 mm and the movement of the presser foot relative to the anvil shall be at right angles to the surfaces of the parallel plates.

7 PROCEDURE

7.1 Take a specimen composed of four cords from the sample and handle the cords in such a manner that no change of twist can occur.

7.1.1 For tabby samples of tyre cord fabrics prior to removing each set of four cords, position the cords such that they are adjacent and parallel with no ends crossed.

7.1.2 Grasp the four cords so that the length of the cords between the finger tips of the left hand and the right hand is approximately equal to the length of the anvil.

7.1.3 Inspect the top and bottom of the specimen to be sure that no knots/splices/foreign protuberances are present on the length of the cords to be gauged.

7.1.4 Place the four cords side by side on the anvil and directly under the presser foot of the thickness gauge.

7.1.5 Apply sufficient tension [of about (5 ± 1) mN/tex] to make the cords straight. Lower the presser foot gradually and gently. Wait until gauge reading becomes stable and record thickness of the specimen.

7.2 Similarly take at least four more readings from other test samples, find the average of all the readings and report it as thickness (gauge) of the tyre cord correct to 0.01 mm.

8 REPORT

8.1 The report shall include the following information:

a) Type of material tested;
b) Diameter of presser foot;
c) Pressure applied;
d) Number of readings taken;
e) Thickness (gauge); and
f) Temperature used for conditioning, that is, (27 ± 2) °C or (20 ± 2) °C.

ANNEX A
(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
IS 6359 : 1971	Method for conditioning of textiles

ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION

Technical Textiles for Mobiltech Sectional Committee, TXD 38

Organization	*Representative(s)*
Northern India Textile Research Association, Ghaziabad	DR M. S. PARMAR **(*Chairperson*)**
Arvind Limited, Ahmedabad	SHRI PABITRA SAHOO SHRIMATI MAMTA CHAUDHARY (*Alternate*)
Autoliv India Ltd, Mysore	SHRI DEEPAK RAO
BMD Pvt Ltd, Banswara	DR NAVDEEP K. PHOGAT
Century Enka Limited, Pune	SHRI MILIND ASHTAPUTRE SHRI KRISHNAGOPAL LANDSARIA (*Alternate*)
Federation of Indian Chambers of Commerce and Industry, New Delhi	SHRI TUSHAR PATEL SHRI MAHENDRA HADA (*Alternate*)
Garware Technical Fibres Limited, Pune	DR ABHAY GUPTA
ICAR - Central Institute for Research on Cotton Technology, Mumbai	DR G. KRISHNA PRASAD DR A. ARPUTHARAJ (*Alternate*)
Indian Technical Textile Association, Mumbai	DR ANUP RAKSHIT SHRI ANKIT DESAI (*Alternate*)
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Metro Tyres Ltd, Ludhiana	SHRI SAMIR MAYRA
Northern India Textile Research Association, Ghaziabad	SHRIMATI NEHA KAPIL
Office of the Textile Commissioner, Mumbai	SHRI V. K. KOHLI SHRI HUMAYUN K. (*Alternate*)
SGS Limited, Gurugram	SHRI GAURAV SARSWAT SHRI ASHISH SARSWAT (*Alternate*)
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Testtex India Laboratories Pvt Ltd, Mumbai	SHRIMATI MEETA SHINGALA SHRI DIPTI RANJAN PRUSTY (*Alternate*)
Textiles Committee, Mumbai	SHRI KARTIKAY DHANDA SHRIMATI SHILPI CHAUHAN (*Alternate*)
The Synthetic and Art Silk Mills Research Association, Mumbai	SHRI SANJAY SAINI SHRI PREMNATH SURWASE (*Alternate*)
Uniproducts Pvt Ltd, Rewari	SHRI VIKAS YADAV
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Member Secretary
SHRI BANOTHU RANGA
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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